

8. Write notes on the following : **5×3=15**

- (a) Wind and seismic loads on tall towers
- (b) Different types of supports
- (c) Skirt bearing plate and Anchor bolts.

No. of Printed Pages : 04

Roll No.

E-43

B. Tech. EXAMINATION, Dec. 2018

(Fifth Semester)

(B. Scheme) (Main & Re-appear)

(CHE)

CHE305B

EQUIPMENT DESIGN

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Discuss Thermal Stresses, Biaxial and Triaxial stresses and torsion of hollow cylindrical shafts.

15

2. (a) Explain stress-strain relationship for elastic bodies.

7

- (b) Discuss different theories of failure in detail.

8

Unit II

3. Derive equation for calculation the thickness of plate to fabricate cylindrical and spherical pressure vessel by Lamé's stress analysis.

15

4. A plain carbon steel process vessel is to be designed for max. operating pressure of 600 kN/m² absolute. The outer diameter of vessel is 1.5 m and length of vessel is 2m. The allowable design stress value of material is 120 MN/m² at working temperature.

- (a) What will be the standard plate thickness to fabricate this vessel ?

M-E-43

2

- (b) Spherical vessel is fabricated with same material, same dia and thickness. Calculate the maxim operating pressure.

15

Unit III

5. (a) Enumerate on different types of Gaskets with applications.

8

- (b) Write note elementary idea of compensation for openings.

7

6. (a) Enumerate on design calculations and shop drawing for one pressure vessel.

8

- (b) Discuss on different types of Jackets with applications.

7

Unit IV

7. (a) Discuss on design of liquid and gas storage tanks.

8

- (b) What are the filling and breathing losses in storage tanks ? How does it affect efficiency ?

7

(3-10/19)M-E-43

3

P.T.O.